

PATENT CLAIMS

1. Method for transporting a flow of fluid hydrocarbons containing water through a treatment and transportation system including a pipeline, characterized in that the flow of fluid hydrocarbons is introduced into a reactor where it is mixed with particles of gas hydrates which are also introduced into said reactor, the effluent flow of hydrocarbons from the reactor is cooled in a heat exchanger to ensure that all water present therein is in the form of gas hydrates, said flow is then treated in a separator to be separated into a first flow and a second flow, said first flow having a content of gas hydrate is recycled to the reactor to provide the particles of gas hydrates mentioned above, and said second flow is conveyed to a pipeline to be transported to its destination.

2. The method of claim 1, characterized in that the flow of fluid hydrocarbons
15 is cooled in a first heat exchanger before being introduced into the reactor.

3. The method of any of claims 1 and 2, characterized in that desired chemicals are added upstream to the reactor.

20 4. The method of any of claims 1-3, characterized in that the flow of fluid hydrocarbons is subjected to a mixing operating before introduction into the reactor to disperse the water present as droplets in the fluid hydrocarbon phase.

5. The method of any of claims 1-4, characterized in that said second flow
25 from the separator is mixed with wet gas before it is conveyed to the pipeline.

6. The method of any of claims 1-5, characterized in that the method is performed at the sea bottom.

30 7. The method of any of claims 1-6, characterized by using an uninsulated pipe as heat exchanger when the surrounding temperature is sufficiently low.

8. The method of any claims 1-7, characterized in that the fluid hydrocarbons are hydrocarbon gas.

9. The method of any of claims 1-8, characterized in that the hydrocarbon flow is conveyed through a choke which is arranged upstream of the reactor or is a part of the reactor.

10. The method of any of claims 1-9, characterized in that the flow from the reactor conveyed through a first separator to be separated in a hydrocarbon gas flow and a flow which is subsequently subjected to separation in a second separator into said first and second flow.

11. The method of claim 10, characterized in that cooled condensate under pressure is added to said first flow which is recycled to the reactor.

12. System for treatment and transportation of a flow of fluid hydrocarbons containing water, characterized in that it includes the following elements listed in the flow direction and connected with each other:

connection to a hydrocarbon source (1),

a first heat exchanger (4),

a reactor (6),

a second heat exchanger (7),

a separator (8), and

a pipeline (13);

and in addition a line (9) which leads from the separator (8) to the reactor (6) and is provided with a pump (10) adapted to recycle material from the separator (8) back to the reactor (6).

13. The system of claim 12, characterized in that the inside of the reactor (6) is coated with a water-repellent material.

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14. The system of any of claims 12 and 13, characterized in that it includes a mixer (5) between the first heat exchanger (4) and the reactor (6).

15. The system of any of claims 12-14, characterized in that it includes means (2) for adding chemicals to the flow.

16. The system of any of claims 12-15, characterized in that it includes means (12) between the separator and the pipeline for mixing the flow from the separator (8) with wet gas (11) before said flow enters the pipeline (13).

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17. The system of any of claims 12-16, characterized in that it includes a separator (14) between the second heat exchanger (7) and the separator (8) for recovering hydrocarbon gas from the flow.

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18. The system of any of claims 12-17, characterized in that it comprises means (16) for adding cooled condensate under pressure to the line (9) from the separator (8) to the reactor (9).

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